Early Childhood Environmental Education in Maryland Schools

Early Childhood (PreK-2nd grade) provides an important framework for young children to use the skills and process of science to learn science concepts that begin their journey toward environmental literacy. Although the proposed Environmental Literacy Standards do not directly link to these primary objectives, these primary grade/early childhood objectives are integral to students learning about and understanding these standards as they reach intermediate and secondary grades.

These standards allow for outdoor opportunities, which develop positive attitudes and relationships with nature. Children as early as PreK can become environmental stewards and understand that their actions have consequences. Early Childhood students in the state of Maryland are taught how to make decisions that can positively impact the environment.

Howard Gardener, professor of education at Harvard University, developed the "theory of multiple intelligences" in 1983. Gardner believed the IQ test was too limiting and offered what he believed were the seven types of intelligences which account for a wider range of potential in children and adults. The "multiple intelligence theory" is widely used among educators as a way to differentiate instruction for students and help each student reach his/her potential. The eighth intelligence: naturalist intelligence, was added at a later time. Professor Leslie Owen Wilson from the University of Wisconsin, a university that offers one of the premier environmental education graduate programs, has developed a list of descriptors for children with this eighth intelligence (Louv, pgs. 72 – 73):

1. ...have keen sensory skills, including sight, sound, smell, taste, and touch.
2. ...categorize things from the natural world.
3. Like to be outside, or like outside activities like...nature walks, or field trips geared toward observing nature...
4. ...notice patterns from their surroundings – likes, differences, similarities, anomalies.
5. Are interested in or care about animals.
6. Notice things in the environment others often miss.
7. Create, keep, or have collections...about natural objects - ...drawings, specimens.
8. Are very interested, from an early age, in...videos, books, or objects from or about nature, science, or animals.
9. Show heightened awareness of and concern for the environment...
10. Easily learn characteristics, names...and data about objects or species found in the natural world.

When looking at the characteristics of the eighth intelligence listed above, one cannot help but think about early childhood. All of these characteristics are discovered, nurtured, and heightened in children from PreK – 2nd grade. Simply looking at curriculum objectives from these grade levels shows the important foundation they create

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for students to become environmentally literate, passionate, and productive citizens of our communities.

Many of the environmental standards put forth correlate indirectly to early childhood science instruction. Indicators, such as, "Standard 5: A – Indicator 1: Analyze the effects of human activities on earth's natural processes," require students to have an understanding of earth's natural processes, of the relationships between and among species, what ecosystems are, and who/what lives within them. Other indicators, "Standard 1: A – Indicators 1-5, "expect students to identify an environmental issue, develop a question, communicate the issue, conduct research, and use data to form conclusions". In order to do this independently and effectively, students have to be exposed to these issues and early on have opportunities for modeling these skills and processes of science. In the early childhood grades, students practice forming questions, collecting data, forming conclusions, and communicating their findings. Hands-on experiences and opportunities to be outside exploring are what give exciting context to these skills and processes. A third example, "Standard 3: C – Interaction of Physical Systems and the Biosphere," require students to have an understanding of properties of water, water's relationship with other substances, how water affects life, and water's connection to Earth's matter and energy, before they can comprehend the complexity of global distribution and abundance of organisms.

All of these precursors are developed in early childhood. For example, students in Kindergarten, "Investigate objects and materials in the environment (MSDE VSC Standard 2: A – Indicator 1)." Students in PreK, "Describe weather using observations (MSDE VSC Standard 2: E – Indicator 2)," and students in Grade 1, "Describe observable changes in water on the surface of the Earth (Standard 2: E – Indicator 1)." Students in Kindergarten, "Investigate a variety of familiar places where plants and animals live to describe the place and the living things found there (Standard 3: F – Indicator 1), while students in Grade 2, "Explain that organisms can grow and survive in many very different habitats (Standard 3: F – Indicator 1). Each of these indicators is an example of how Maryland districts are teaching our youngest students the background knowledge necessary to become environmentally literate in today's world.

E.O. Wilson, the father of biophilia, says, "Most children have a bug period, and I never outgrew mine". Hands-on experience at the critical time, not systematic knowledge, is what counts in the making of a naturalist... (Louv, p.150). Rachel Carson, author of *Silent Spring* and other books, echoes this belief when she says, "It is not half so important to know as to feel when introducing a young child to the natural world, (http://www.liveecological.com)." Maryland school districts believe in the importance of authentic, hands-on, natural experiences for our early childhood students, in order to prepare them in becoming the naturalists of tomorrow.

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